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AMENDED CLAIMS

**[received by the International Bureau on 05 July 2004 (05.07.04);
original claims 3, 6, 7 and 16-43 amended; new claims 57-64 added;
remaining claims unchanged (9 pages)]**

1. A concrete mixing truck for transporting concrete from one location to another comprising:
 - a chassis including: a frame, a first power source coupled to the frame, wheels coupled to the frame, and a first drivetrain coupling the first power source and the wheels;
 - a second drivetrain coupled to a second power source; and
 - a mixing drum coupled to the frame and to the second drivetrain, the drum comprising:
 - a wall defining a first end of the drum and a second end of the drum;
 - a drive ring coupled to the first end of the drum and comprising:
 - a hub operatively coupled to the second drivetrain;
 - and
 - a plurality of extensions extending outwardly from the hub into the wall of the drum, at least one of the extensions including an aperture extending therethrough;
 - wherein rotation of the hub by the second drivetrain causes rotation of the drum.
2. The concrete mixing truck of claim 1, wherein the first power source and the second power source are the same power source.
3. The concrete mixing truck of claim 1, wherein the wall includes a first layer and a second layer exterior to the first layer.
4. The concrete mixing truck of claim 3, wherein the extensions extend into the second layer of the wall.
5. The concrete mixing truck of claim 4, wherein the first layer is made from an elastomeric material.

6. The concrete mixing truck of claim 5, wherein the second layer is made from a reinforced composite material including fibers and resin.

7. The concrete mixing truck of claim 6, wherein the aperture is configured to allow the resin used in the construction of the second layer of the wall to infiltrate the aperture.

8. The concrete mixing truck of claim 7, wherein the fiber in the second layer extends between the extensions.

9. The concrete mixing truck of claim 8, wherein the hub is substantially cylindrical.

10. The concrete mixing truck of claim 9, wherein the extensions extend radially outward from the hub.

11. The concrete mixing truck of claim 10, wherein the extensions are spaced apart around the hub.

12. The concrete mixing truck of claim 1, wherein the extensions are triangular.

13. The concrete mixing truck of claim 1, wherein the extensions are rectangular.

14. The concrete mixing truck of claim 1, wherein the drive ring is integrally formed as a single unitary body.

15. The concrete mixing truck of claim 14, wherein drive ring is formed from a cast material.

16. A composite, heavy duty rotary concrete mixing drum for coupling to a vehicle having a drivetrain for rotating the drum, the drum comprising:
a wall defining a first end of the drum and a second end of the drum;

a drive ring coupled to the first end of the drum and comprising:
a hub configured to be operatively coupled to the drivetrain;
and
a plurality of extensions extending outwardly from the hub
into the wall of the drum, at least one of the extensions including an
aperture;
wherein rotation of the hub by the drivetrain causes rotation of
the drum.

17. The concrete mixing drum of claim 16, wherein the wall includes
a first layer and a second layer.

18. The concrete mixing drum of claim 17, wherein the extensions
extend into the second layer of the wall.

19. The concrete mixing drum of claim 18, wherein the first layer is
made from an elastomeric material.

20. The concrete mixing drum of claim 19, wherein the second layer
is made from a fiber reinforced composite material.

21. The concrete mixing drum of claim 20, wherein the aperture is
configured to allow resin used in the construction of the second layer of the
drum to infiltrate the aperture.

22. The concrete mixing drum of claim 21, wherein the fiber in the
second layer extends between the extensions.

23. The concrete mixing drum of claim 22, wherein the hub is
substantially cylindrical.

24. The concrete mixing drum of claim 23, wherein the extensions
extend radially outward from the hub.

25. The concrete mixing drum of claim 24, wherein the extensions are spaced apart around the hub.

26. The concrete mixing drum of claim 16, wherein the extensions are triangular.

27. The concrete mixing drum of claim 16, wherein the extensions are rectangular.

28. The concrete mixing drum of claim 16, wherein the drive ring is formed from a cast material.

29. The concrete mixing drum of claim 28, wherein the cast material is off-tempered ductile iron.

30. A composite, heavy duty rotary concrete mixing drum for coupling to a vehicle having a drivetrain for rotating the drum, the drum comprising:

a wall defining a first end of the drum and a second end of the

drum;

a drive ring integrally formed as a single unitary body from a cast material, wherein the drive ring is coupled to the first end of the drum and comprising:

a hub configured to be operatively coupled to the drivetrain;

and

a plurality of extensions extending outwardly from the hub into the wall of the drum;

wherein rotation of the hub by the second drivetrain causes rotation of the drum.

31. The concrete mixing drum of claim 30, wherein at least one of the extensions includes an aperture extending therethrough.

32. The concrete mixing drum of claim 30, wherein the wall includes a first layer and a second layer.

33. The concrete mixing drum of claim 32, wherein the extensions extend into the second layer of the wall.

34. The concrete mixing drum of claim 33, wherein the first layer is made from an elastomeric material.

35. The concrete mixing drum of claim 34, wherein the second layer is made from a fiber reinforced composite material.

36. The concrete mixing drum of claim 35, wherein the aperture is configured to allow resin used in the construction of the second layer of the wall to infiltrate the aperture.

37. The concrete mixing drum of claim 36, wherein the fiber in the second layer extends between the extensions.

38. The concrete mixing drum of claim 37, wherein the hub is substantially cylindrical.

39. The concrete mixing drum of claim 38, wherein the extensions extend radially outward from the hub.

40. The concrete mixing drum of claim 39, wherein the extensions are spaced apart around the hub.

41. The concrete mixing drum of claim 30, wherein the extensions are triangular.

42. The concrete mixing drum of claim 30, wherein the extensions are rectangular.

43. The concrete mixing drum of claim 30, wherein the cast material is off-tempered ductile iron.

44. A drive ring for coupling to a heavy duty rotary concrete mixing drum capable of attachment to a vehicle having a drivetrain for rotating the drum, the drive ring comprising:

a hub configured to be operatively coupled to the drivetrain of the vehicle; and

a plurality of projections extending outwardly from the hub and configured to engage the drum, at least one of the projections including an aperture.

45. The drive ring of claim 44, wherein the aperture is configured to allow resin used in the construction of the drum to infiltrate the aperture.

46. The drive ring of claim 44, wherein the projections are configured to allow fiber used in the construction of the drum to extend between the projections.

47. The drive ring of claim 44, wherein the hub is substantially cylindrical.

48. The drive ring of claim 47, wherein the projections extend radially outward from the hub.

49. The drive ring of claim 44, wherein the distance between each of the projections around the hub is less than 6 inches.

50. The drive ring of claim 44, wherein the plurality of projections includes 12 projections.

51. The drive ring of claim 48, wherein the projections are spaced apart around the periphery of the hub.

52. The drive ring of claim 44, wherein the projections are triangular.

53. The drive ring of claim 44, wherein the projections are rectangular.

54. The drive ring of claim 44, wherein the drive ring is integrally formed as a single unitary body from a cast material.

55. The drive ring of claim 54, wherein the cast material is off-tempered ductile iron.

56. The drive ring of claim 44, wherein the extensions are configured to angle toward the mixing drum.

57. A method of coupling a drive ring to a wall of a composite mixing drum, the wall comprising fibers and resin, the drive ring being configured to transfer a rotational force applied by a powered drivetrain to the wall, the method comprising the steps of:

providing a drive ring including:

a hub configured to be coupled to the powered drivetrain,

and

a plurality of extensions extending outwardly from the hub;

forming the wall around the extensions; and

mechanically interlocking the wall to the drive ring;

so that when the drive ring is coupled to the powered drivetrain, the force applied by the powered drivetrain to the drive ring will be distributed within the wall.

58. The method of claim 57, wherein the step of forming the wall around the extensions comprises the step of wrapping the fibers of the wall around at least one of the extensions.

59. The method of claim 57, wherein the extensions include apertures and wherein the step of mechanically interlocking the wall to the drive ring comprises the step of filling the apertures with the resin of the wall.

60. The method of claim 57, wherein the extensions each include an aperture and wherein the step of mechanically interlocking the wall to the drive ring comprises the step of filling each aperture with the resin of the wall.

61. The method of claim 57, wherein the hub and the extensions of the drive ring are formed as a single unitary body from a cast material.

62. The method of claim 57, wherein the extensions each include an aperture and wherein the step of mechanically interlocking the wall to the drive ring comprises the step of forming a portion of the wall within the aperture.

63. A concrete mixing drum for coupling to a power source for rotating the drum, the drum comprising:

- a wall defining a first end of the drum and a second end of the drum;

- a drive ring coupled to the first end of the drum and comprising:

- a hub configured to be operatively coupled to the power source; and

- a plurality of extensions extending outwardly from the hub into the wall of the drum, at least one of the extensions including an aperture;

- wherein rotation of the hub by the power source causes rotation of the drum.

64. A concrete mixing drum for coupling to a power source for rotating the drum, the drum comprising:

- a wall;
- a drive ring coupled to the wall and comprising:
 - a hub configured to be operatively coupled to the power source; and
 - a plurality of extensions extending outwardly from the hub into the wall,
- one of the wall and the plurality of extensions including a plurality of recesses, the other one of the wall and the plurality of extensions including a plurality of corresponding projections for engaging the plurality of recesses;
- wherein rotation of the hub by the power source causes rotation of the drum.

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